

Date: Monday, 10/6/2008 7:44:20 AM
 User: Chantal Lavoie

Process Sheet

Customer :	CU-DAR001 Dart Helicopters Services	Drawing Name :	ROUND BILLET 17-4
Job Number :	42436		
Estimate Number :	10039		
P.O. Number :		Part Number :	D6104003
This Issue :	10/6/2008	S.O. No. :	
Prsht Rev. :	NC	Drawing Number :	D6104 REV B
First Issue :	//	Project Number :	N/A
Previous Run :	39625	Drawing Revision :	B
	Type :	Material :	
	MACHINED PARTS	Due Date :	10/17/2008
Written By :		Qty:	30
Checked & Approved By :		Um:	Each
Comment :	Est. B: 01.09.04 Revised Step 2 SM		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	PG	PURCHASING
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Comment: PURCHASING

Issue P/O: 7315

a) Description: S.S round billet

b) Ø3.25" x 3.80" long

c) Tolerance on all dimensions are +0.030"/-0.000"

d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630)

e) One blank makes 2 parts

f) Material certification required

C208/10/06

(30)

2.0	D6104003P	17-4 SS Roundbar 3.25"OD
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 30.0000 Each(s)
 17-4 SS Roundbar 3.25"OD

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure material certification is attached

C 8/14/16

(30)

4.0	QC6	DIMENSIONAL CHECK
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Comment: DIMENSIONAL CHECK

Ensure Material certification comply to Dwg D6104

SA 08/11/02

(30)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/6/2008 7:44:20 AM
User: Chantal Lavoie

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services Drawing Name: ROUND BILLET 17-4

Job Number: 42436 Part Number: D6104003

Job Number: 

Seq. #: Machine Or Operation: Description :

5.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: *CNC*

Paul 08-11-02 (3)

6.0 QC21 FINAL INSPECTION/W/O RELEASE



08/11/04 JF

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion 

mf 08-11-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



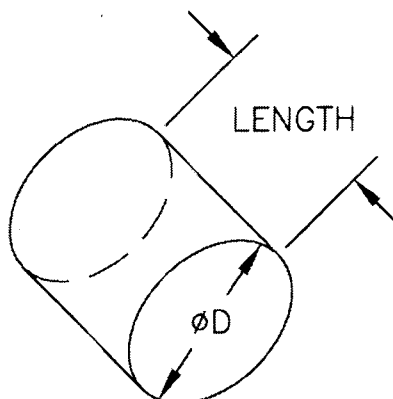
DESIGN T4	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 42436



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRc)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Métaux Castle®**

CERTIFICATION

A.M. CASTLE & Co. (Canada)

DATE CHARGED-LOADED

NO. COM-ORD. NO.

POIDS TOTAL JOURNÉE-TOT. DLT

SHIPPED OCT 19 2000

5774438

3. REQUISITION CLIENT-CUSTOMER REQUISITION NO.		NO. COM. CLIENT-CUST. ORD. NO. 7315		COMPTÉ-ACCT. 91087	VEND.-SLS 200	TERR. 50	EXPÉDIT PAR-SHIP VIA MANITOULIN			
CHETEUR-PURCHASING AGENT LINDA LACELLE		TELEPHONE 613 632-3336	H/C 9	TAXE 2	NO. COM ORD 1	REGION LIVRAISON-DEL ZONE C/C		F.A.B.-F.O.B. PREPAID	BILL	NO. FEVILLE/EMBALLAGE-B/L NUMBER
VRÉ A-SHIP TO:		VENDU A-SOLD TO: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY ON K6A 1K7				INFORMATION CRÉDIT-CREDIT INFORMATION			ROUTE 01*NL-10/0 30-NL-10/1 31-NL-10/1	
ISTRUCTIONS/LIVRAISON-DELIVERY INQ-183568		ISTRUCTIONS LIVRAISON (CONT.)-DELIVERY (CONT'D.)				INSTRUCTIONS LIVRAISON (CONT.)-DELIVERY (CONT'D.)				
DESCRIPTION - ITEM 1 3.2500 RD 17CR-4NI RT SOL. TREATED COND A 3.80" GOLD								QTE/UNITE COM.-ORDERED 30 PCS		POIDS COM.-WT. ORDERED 268
<div>CERTIFICATE OF CONFORMANCE</div> <p>A.M. Castle & Co. certifies that the material(s) supplied under this document will meet and conform to the specifications of the product(s) described hereon. A.M. Castle & Co. (Canada) Inc.</p> <p>WEIGHT FOR SHIPPING PURPOSES ONLY. SEE INVOICES FOR ACCURATE BILLING WEIGHT. PLEASE SIGN AND DATE DRIVER'S COPY FOR RECEIPT OF MATERIAL AND, IF CHECKED, TEST REPORTS.</p>		ISTRUCTIONS TOL + 1/8" - 0 DO NOT SUBSTITUTE HEAT(S) PRIOR DIST/ORD: 01 673047				COULÉE INFO-HEAT INFO QTE-QTY 614134 ✓		BALLOTS-BUNDLES 1 30		POIDS EXP.-WT. SHIPPED 271
								FORME-SHAPE 28.210FT		I.A.C. 42470
								ENT-W 4		
DESCRIPTION - ITEM 2								QTE/UNITE COM.-ORDERED		POIDS COM.-WT. ORDERED
<div>TERMS AND CONDITIONS OF SALE</div> <p>SEE DISCLAIMERS AND LIMITATIONS ON THE REVERSE SIDE</p>		ISTRUCTIONS <div>1 Box</div>				COULÉE INFO-HEAT INFO QTE-QTY		BALLOTS-BUNDLES		POIDS EXP.-WT. SHIPPED
								FORME-SHAPE		I.A.C.
								ENT-W		
DESCRIPTION - ITEM 3								QTE/UNITE COM.-ORDERED		POIDS COM.-WT. ORDERED
ALL EXCEPTIONS FOR SHORTAGE OR DAMAGE MUST BE NOTED ON THE DRIVER COPY & CUSTOMER COPY OF THE DELIVERY RECEIPTS & SIGNED BY THE DRIVER & CUSTOMER. COPY OF SUCH RECEIPT PROPERLY NOTED MUST BE SUBMITTED WITHIN 10 DAYS WHEN CREDIT IS REQUESTED.		ISTRUCTIONS				COULÉE INFO-HEAT INFO QTE-QTY		BALLOTS-BUNDLES		POIDS EXP.-WT. SHIPPED
								FORME-SHAPE		I.A.C.
								ENT-W		
NOM (LETTRE MOULEE)-NAME (PRINT ONLY)		DATE RECU-DATE RECEIVED				INSTRUCTIONS (CONT'D.)				ENT-W

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000637813


TALLEY METALS
 A Carpenter Company

Talley Metals Technology, Inc.

205 Talley Metals Lane

McBee, SC. 29101 Tel: (610) 208-2000 (800) 338-4592

03/20/08

CUSTOMER / BESTELLER / CLIENT

SELLER / VERKÄUFER / VENDEUR PAGE 1 OF 2

A.M. CASTLE & CO

 3400 N WOLF RD
 FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / WERKS-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEICHT / GEWICHT / POIDS
02-29398-01	W82906	03/20/08	4075.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: G14134

 PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
 ----- PART NUMBER: IAC 42470

 SPECIFICATION: CASTLE 3174-10 CAP OF COND. H900 REV 7 (07/15/05)
 ----- AMS 5643 REV Q (01/ /03) (UNS S17400) (AISI 630)
 ASTM-A564-04
 ASME-SA564 2007 EDITION

SIZE 3.250000 IN. (82.55 MM) RD BAR

PRIMARY HEAT CHEMISTRY(WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN(XRF)	SI(XRF)	P (XRF)	S (COM)	CR(XRF)
0.03	0.87	0.40	0.024	0.024	15.41
NI(XRF)	MO(XRF)	CU(XRF)	N (FUS)	CB(XRF)	TA(XRF)
4.22	0.33	3.74	0.028	0.25	LT .01
CB+TA:					
0.26					

 THIS HEAT MELTED BY THE ARC/AOD PROCESSES
 NO WELD REPAIR.

 MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE
 CONTAMINATION.

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HBW - 351 (MIDRADIUS)

 MICROSTRUCTURE - FERRITE 2.27%
 MAGNETIC PARTICLE: FREQUENCY = 0 / SEVERITY = 0

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

CONTINUED ON NEXT PAGE

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CERTIFICAT DE CONTROLE

CERT SERIAL# 000637813


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03/20/08

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SELLER / VERKAUFER / VENDEUR PAGE 2 OF 2

HVL

CUSTOMER ORDER NO. / BESTELL-NR. / N° DE COMMANDE	CARPENTER NO. / WERKS-NR. / N° DE REFERENCE INTERNE	DATE / DATUM / DATE	WEIGHT / GEWICHT / POIDS
02-29398-01	W82906	03/20/08	4075.000

 HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE:
 CAPABILITY

G14134

900 F(482 C), 01 HR

AIR COOL

 YIELD STRENGTH, (0.20 %) KSI(MPA)
 TENSILE STRENGTH, KSI(MPA)
 ELONGATION IN 2.00", %
 REDUCTION OF AREA, %
 HARDNESS, HBW

 185.0(1276)
 210.0(1448)
 14.0
 44.0
 414.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED
 MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A.
 MATERIAL HAS BEEN MELTED IN USA OR QUALIFYING COUNTRY TO DFARS REQUIRE-
 MENTS 252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1.
 WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE
 PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS
 PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1B OF EN 10204(DIN50049)

 STEPHANIE E. MCCULLUM
 QUALITY ASSURANCE ENGINEER
 CARPENTER TECHNOLOGY CORPORATION

CASTLE METALS-LA

DATE RECD 04/01/08

RECD FROM TALLEY.

APPROVED BY [Signature]

IAC 42470